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Complete if Known	
Application Number	10/669,177
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First Named Inventor	Ba-Zhong Shen
Art Unit	2133
Examiner Name	DILDINE JR, R STEPHE
Attorney Docket Number	DP3030.1

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		Moe Wheatley, "WinPSK Technical Reference Manual", 46 pages, 12-28-1999	

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Date
December 19, 2006

Our reference
BP02P354EP/BO/bs

Your reference
BP3036

European Patent application 03022638.5-1247
Iterative metric updating when decoding LDPC (Low Density Parity Check) coded signals and LDPC coded modulation signals
Broadcom Corporation

Dear Sirs,

Enclosed herewith, please find some documents for the IDS.

Very truly yours

BOSCH GRAF VON STOSCH JEHLE
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1/13/07
1/15/07

WinPSK Technical Reference Manual

by

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Table of Contents

1. WinPSK Overview

1.1. Introduction

PSK31 is an amateur radio communications mode introduced by Peter Martinez, G3PLX, that uses phase modulation and special character coding. It provides robust narrow bandwidth keyboard Chat type communications between two or more stations.

This document was written to describe some of the internal workings of the WinPSK program that was developed as a result of my experimenting with DSP on a PC soundcard. Previously, experimenting with DSP was achieved using evaluation boards from various DSP chip manufacturers. Programming these boards was tedious due to their assembly language and fixed-point number representation. Trying to learn the basics of DSP often got lost in the details of programming and debugging these specialty processors.

Beginning with the Intel 486 and subsequent Pentium class processors being used in the popular desktop PC platform, the processing power has increased to the point where real time signal processing can now be done using floating point arithmetic and a PC soundcard for analog I/O. The amateur radio community has benefited from these advances with PC Soundcard based applications for SSTV, RTTY, and more recently, PSK31.

My interest in all this was in learning how to develop and program various DSP communications algorithms using a standard Windows[1] based PC platform. It is from these experiments that WinPSK evolved from basically a DSP test bed to a simple functioning program for PSK31. This paper describes in some detail the basic design decisions that were made during this learning process that led to the final program. It is not meant as a definitive reference on PSK31 implementation but just an engineering notebook describing this program. Perhaps others can build on some of the information here to improve this program as well as be motivated to experiment with new modes.

The basic goal was to write a working PSK31 interface program from scratch. Unlike some other HF modes, Peter Martinez has made available very complete specifications for this mode[2,3]. Also his Windows program "PSKsbw" provided an excellent reference program for verifying and testing various algorithms.

"WinPSK User Guide" is a separate document that describes the user operation of the program. This document only describes the inner workings of the program.

The program will be described in sections starting with signal generation then followed by the reception algorithms. Finally, the overall software architecture and miscellaneous issues will be discussed.